GENERALIZED PARITY STRIPE DATA STORAGE ARRAY

ABSTRACT OF THE DISCLOSURE

The Hamming distance of an array of storage devices is increased by generating a parity check matrix based on column equations that are formed using an orthogonal parity code and includes a higher-order multiplier that changes each column. The higher order multiplier is selected to generate a finite basic field of a predetermined number of elements. The array has M rows and N columns, such that M is greater than or equal to three and N is greater than or equal to three. Row 1 through row M – 2 of the array each have n - p data storage devices and p parity storage devices. Row M – 1 of the array has n – (p + 1) data storage devices and (p + 1) parity storage devices. Lastly, row M of the array has N parity storage devices.